Since 1975

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Research Report - 01

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The bioelectrical brain maturation in relation to age

(Edit Memories: Forty - showing the development of research Foundation-)

In the investigation of emotions and cognition, the ages of the subjects vary in different phylogenetic stages of development, we show schematically the bioelectrical brain maturation in relation to age.

1. To twelve months, the dominant diffuse rhythms with progressive differentiation and symmetric and synchronous labile 1 to 5 c / sec and on the 7th mV. average values ??from seventh to eighth month began an acceleration of theta frequencies up to 5 or 6 c / sec. in this first stage, key brain regions are the middle and posterior.

2. In the twelve months to four years old, theta rhythm progressive dominance, which began in the posterior regions moving toward the middle

regions, while in these regions stabilizes its most abundant symmetry and synchronization, when about two years is occipital alpha rhythm present still low, slow, unstable and usually asymmetrical, with rather high voltage.

In the frontal pole still vestiges of a weak delta activity timing and voltage. Within this stage we can see, therefore, the next sample, even labile topographic differentiation as the dominant frequencies:

a) slow alpha rhythm occipito-posterior parietal usually asymmetrical.

b) abundant theta rhythm in the middle regions of alpha frequency overloaded.

c) delta waves in the anterior regions, sometimes clustered on short shoots weak rhythmic timing and voltage.

3. From four to eight years away such traces of delta activity, but persist in some cases under the subsequent expression of slow waves. The alpha rhythm is dominant in the parietal-occipital and posterior temporal, with rather high voltage, there are still a theta rhythm in the anterior half, but which become weaker and voltage stability. Presence of beta rhythm forehead Rolandic.

4. From eight to fifteen years progressive disappearance of the theta component as representative rate, with some reduction in the voltage alpha rhythm faster than the dominant frequency and rhythmic modulation, a feature in outbreaks long(spindle-forms and symmetrical.

5. Of the fifteen to twenty years or so, there is a stabilization of the individual characteristics of biorhythms brain at rest psychophysical and its responsiveness to simple sensory stimuli, with the disappearance of slow waves followed.

Do not think that stages are limited to a rigid schedule, the evolutionary progress of the EEG in these stages is characterized by its lability, ductility, as an expression bioelectrical physiological functional plasticity of the infant brain.

Relate E.E.G. age establishes what is called the index of differentiation, expressed in the equation:

$$S = O / P \times O / R$$

Where O, P and R represent the mean amplitude of the rhythms occipital, parietal and rolandic recorded at rest and in regions homologous interhemispheric derivations, there is agreement between the subjective and the calculation of the S.

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End of Memory